

In the Claims:

1. (Currently Amended) An image decoding apparatus comprising:
a decoding device for converting input image coded data for generating and outputting image data by decoding said image coded data;
a memory device for storing decoded image data generated by said decoding device;
first to N-th, N being an integer 2 or more, image format conversion devices for generating first to N-th images by converting said decoded image data read from the memory device into respective predetermined image formats determined by input filter parameters, and outputting said first to N-th images in synchrony with input first to N-th vertical image synchronizing signals which are synchronized with each other; and
wherein a non-display period is provided between a common timing of each of said vertical image synchronizing signals and a timing of said image data; and
wherein said filter parameters are multiplexed with the decoded image data in said non-display period.

2. (Currently Amended) An image decoding apparatus comprising:
first to N-th decoding devices which convert input first to N-th image coded data for generating and outputting first to N-th image data by decoding said first to N-th image coded data;
a memory device for storing said first to N-th image data generated by respective decoding devices;
first to N-th image format conversion devices for generating first to N-th images by converting any of image data from among said first to N-th image data read from the memory device into respective predetermined image formats determined by input filter parameters, and outputting said first to N-th images in synchrony with input first to N-th vertical image synchronizing signals which are synchronized with each other; and
wherein a non-display period is provided between a common timing of each of said vertical image synchronizing signals and a timing of said image data; and
wherein said filter parameters are multiplexed with the image data in said non-display

period.

3. (Previously Presented) An image decoding apparatus according to claim 2, wherein the image decoding apparatus comprises a distribution control apparatus for distributing any of the image data among said first to N-th image data respectively to first to N-th image format conversion devices, in response to a request of said first to N-th image format conversion device.

4. (Cancelled)

5. (Previously Presented) An image decoding apparatus according to claim 1, wherein the image decoding apparatus further comprises:

an image synchronizing signal generation device for generating and outputting the first vertical image synchronizing signal used for outputting said image by any one of the image format conversion device among said first to N-th image format conversion devices; and

first to M-th, M being an integer equal to N-1, image synchronizing signal generating and synchronization adjusting devices for generating and outputting the second to the N-th vertical image synchronizing signals respectively in synchronization with said first vertical image synchronizing signal used for outputting said images by said image format conversion devices other than said one of the image format conversion device.

6. (Original) An image decoding apparatus according to claim 5, wherein said first to M-th image synchronizing signal generating and synchronization adjusting devices comprise:

a counter for generating any one of said second to N-th vertical image synchronizing signals generated and output respectively by said first to M-th image synchronizing signal generating and synchronization adjusting devices; and

a counter control device for controlling the operation of said counter based on said first vertical image synchronizing signal.

7.- 8. (Cancelled)

9. (Currently Amended) A semiconductor device comprising:

a decoding device for generating image data by decoding input image coded data, and for storing the thus generated image data in a memory device;

a decoded data reading device for reading said image data stored in said memory device in response to an inputting decoded data request signal and for outputting said image data as decoded data signal;

a first image format conversion device for generating a first image by converting said decoded data signal into a predetermined image format determined by an input first filter parameter, and for outputting said first image in synchrony with an input first vertical image synchronizing signal; and

a second image format conversion device for generating a second image by converting said decoded data signal into a predetermined image format determined by an input second filter parameter, and for outputting said second image in synchrony with an input second vertical image synchronizing signal which is synchronized with said first vertical image synchronizing signal; and

wherein a non-display period is provided between a common timing of each of said first and second vertical image synchronizing signals and a timing of said image data; and

wherein said first and second filter parameters are multiplexed with said decoded data signal in said non-display period.

10. (Currently Amended) A semiconductor device comprising:

a first decoding device for generating a first image data by decoding input first image coded data and for storing the generated first image data in a memory device;

a second decoding device for generating a second image data by decoding an input second image coded data, and for storing the generated second image data in the memory device;

a decoded data reading device for reading said first or second image data stored in said memory device in response to an inputting first decoded data request signal and for reading said first or second image data stored in said memory device in response to

an inputting second decoded data request signal and for outputting said first and second image data;

a distribution control device for distributing said first and second image data as a first decoded data signal corresponding to said first decoded data request signal and a second decoded data signal corresponding to said second decoded data request signal;

a first image format conversion device, which outputs the first decoded data request signal for generating a first image by converting said first decoded data signal into a first predetermined image format determined by an input first filter parameter and for outputting said first image in synchrony with an input first vertical image synchronizing signal; and

a second image format conversion device which outputs the second decoded data request signal for generating a second image by converting said second decoded data signal into a second predetermined image format determined by an input second parameter, and for outputting said second image in synchrony with an input second vertical image synchronizing signal which is synchronized with said first vertical image synchronizing signal; and

wherein a non-display period is provided between a common timing of each of said first and second vertical image synchronizing signals and a timing of said image data; and

wherein said first and second filter parameters are multiplexed with said image data in said non-display period.

11. (Cancelled)

12. (Currently Amended) An image decoding method for decoding an inputting image coded data and for generating an image data comprising the steps of:

generating a first image by converting said image data into a predetermined image format determined by an input first filter parameter and outputting the generated first image in synchrony with an input first vertical image synchronizing signal; and

generating a second image by converting said image data into a predetermined image format determined by an input second filter parameter and outputting the generated second image in synchrony with an input second vertical image synchronizing signal which is synchronized with said first vertical image synchronizing signal; and

wherein a non-display period is provided between a common timing of each of said first and second vertical image synchronizing signals and a timing of said image data; and
wherein said first and second filter parameters are multiplexed with said image data in said non-display period.

13. (Currently Amended) An image decoding method comprising:
generating a first image data by decoding an inputting first image coded data;
generating a second image data by decoding an inputting second image coded data;
controlling the distribution of said first and second image data to their request sources;
generating a first image from said requested first image data by converting into a predetermined image format determined by an input first filter parameter and outputting said first image in synchrony with an input first vertical image synchronizing signal; and
generating a second image from said requested second image data by converting into a predetermined image format determined by an input second filter parameter and outputting said second image in synchrony with an input second vertical image synchronizing signal which is synchronized with said first vertical image synchronizing signal; and
wherein a non-display period is provided between a common timing of each of said first and second vertical image synchronizing signals and a timing of said image data; and
wherein said first and second filter parameters are multiplexed with said image data in said non-display period.

14. (Previously Presented) An image decoding apparatus according to claim 1, wherein said filter parameters are input to said first to N-th image format conversion devices in a predetermined period during which no decoded image data are input to said first to N-th image format conversion devices.

15. (Previously Presented) An image decoding apparatus according to claim 14, wherein said filter parameters are multiplexed with said decoded image data, and the multiplexed data are input to said first to N-th image format conversion devices.

16. (Currently Amended) An image decoding apparatus according to claim 15,

wherein ~~the non-display period includes a period between the time said filter parameters are input to said first to N-th image format conversion devices between the time said vertical image synchronizing signals are input to said first to N-th image format conversion devices and the time said decoded image data are input to said first to N-th image format conversion devices.~~

17. (Previously Presented) An image decoding apparatus according to claim 14, wherein said vertical image synchronizing signals are input to said first to N-th image format conversion devices at the same phase.

18. (Previously Presented) An image decoding apparatus according to claim 14, wherein said respective filter parameters are input to said first to N-th image format conversion devices in synchrony with said vertical image synchronizing signals corresponding thereto.

19. (Previously Presented) An image decoding apparatus according to claim 1, wherein said input image coded data is coded bit stream in MPEG form.

20. (Previously Presented) An image decoding apparatus according to claim 2, wherein said filter parameters are input to said first to N-th image format conversion devices in a predetermined period during which no image data are input to said first to N-th image format conversion devices.

21. (Previously Presented) An image decoding apparatus according to claim 20, wherein said filter parameters are multiplexed with said image data, and the multiplexed data are input to respective first to N-th image format conversion devices.

22. (Currently Amended) An image decoding apparatus according to claim 21, wherein ~~the non-display period includes a period between the time said filter parameters are input to said first to N-th image format conversion devices between the time said vertical image synchronizing signals are input to said first to N-th image format conversion devices~~

and the time said image data are input to said first to N-th image format conversion devices.

23. (Previously Presented) An image decoding apparatus according to claim 20, wherein said vertical image synchronizing signals are input to said first to N-th image format conversion devices at the same phase.

24. (Previously Presented) An image decoding apparatus according to claim 20, wherein said respective filter parameters are input to said first to N-th image format conversion devices in synchrony with said vertical image synchronizing signals corresponding thereto.

25. (New) An image decoding apparatus according to claim 2, wherein said input first to N-th image coded data are coded bit stream in MPEG form.

26. (New) An image decoding apparatus according to claim 1, wherein the non-display period includes a period between the time said vertical image synchronizing signals are input to said first to N-th image format conversion devices and the time said decoded image data are input to said first to N-th image format conversion devices.

27. (New) An image decoding apparatus according to claim 2, wherein the non-display period includes a period between the time said vertical image synchronizing signals are input to said first to N-th image format conversion devices and the time said decoded image data are input to said first to N-th image format conversion devices.

28. (New) An image decoding apparatus according to claim 9, wherein the non-display period includes a period between the time said vertical image synchronizing signals are input to said first and second image format conversion devices and the time said decoded data signal are input to said first to N-th image format conversion devices.

29. (New) An image decoding apparatus according to claim 10, wherein the non-display period includes a period between the time said vertical image synchronizing signals

are input to said first and second image format conversion devices and the time said image data are input to said first to N-th image format conversion devices.

30. (New) An image decoding apparatus according to claim 12, wherein the non-display period includes a period between the time said vertical image synchronizing signals are input and the time said image data are input.

31. (New) An image decoding apparatus according to claim 13, wherein the non-display period includes a period between the time said vertical image synchronizing signals are input and the time said image data are input.